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Empowering Communities. Advocating Solutions.

**Testimony in Support of HB 6897
Testimony by Louis W. Burch
Citizens Campaign for the Environment**

**March 3, 2015
Hartford, CT**

Senator Bartolomeo, Representative Urban, esteemed members of the CGA Environment Committee, thank you for the opportunity to speak today.

My name is Louis Burch, Program Coordinator for Citizens Campaign for the Environment (CCE). Supported by over 80,000 members in Connecticut and New York State, CCE works to empower communities and advocate solutions that protect public health and the natural environment. CCE offers the following testimony regarding HB 6897:

HB 6897- AAC the Application of Pesticides at State Operated Parks, Athletic Fields and Playgrounds (SUPPORTIVE)

CCE supports the concept of this legislation, with recommendations to strengthen the legislation and provide increased protections for our children's health. It is well documented that exposure to pesticides can increase an individual's risk of developing neurological, respiratory and endocrine disorders. Long-term exposure to pesticides has even been linked to certain cancers, including Leukemia and non-Hodgkin lymphoma. Children are more susceptible to the dangers of pesticide exposure than adults, due to their small size and rapidly developing bodies, close proximity to the ground, and tendency to put hands and objects in their mouths.

The U.S. Environmental Protection Agency, National Academy of Sciences, and American Public Health Association, among others, all recognize the danger that exposure to pesticides pose to children's health, and recommend eliminating these exposures wherever possible. Connecticut established itself as a nationwide leader on this critical issue in 2005, by prohibiting the use of toxic pesticides on school playing fields grades K-6. That policy was expanded in 2007 to include middle schools playing fields, and again in 2009 to include day care facilities. The gradual expansion of this policy demonstrates a growing body of knowledge among the health sciences community and the CT General Assembly around this serious children's health issue.

The ban on toxic pesticides for day care facilities and K-8 schools is an important starting point, but the CT legislature can and should do more to protect children's health by expanding the law to prohibit toxic pesticides on *all* state and municipal parks, green spaces and public playing fields, where children's exposure rates are high. Heavy physical activities such as sports and exercise lead to heavy breathing, which can also increase a

child's risk of inhaling toxic pesticides. Fortunately, effective and affordable alternatives to pesticides exist and are widely available. With the proper training and implementation, pests and weeds can be managed successfully with readily available and affordable non-toxic alternatives, and states and municipalities that eliminate the use of chemical pesticides can also benefit from long-term financial savings.¹

CCE supports this legislation's intent to eliminate pesticide exposure in areas where children learn and play, however, we urge the legislature to provide stronger protections for children's health and recommend:

- **Amending the definition of *Controlling Authority* contained in Sec. 2(a)2** to ensure that a determination of whether or not a pest problem constitutes a significant public health threat may only be made by the local health director, the Commissioner of Public Health, or a designee thereof, and *not* by the head of any municipal department charged with the maintenance of parks, playgrounds, athletic fields and municipal greens. The vast majority of municipal department heads lack the medical background and professional expertise to determine whether a perceived public health threat actually meets the level of concern necessary to warrant the use of toxic chemical pesticides in areas where children play. These decisions should only be made by a local health director of the Commissioner of Public Health.
- **Expanding the legislation to cover municipal parks.** In communities all across Connecticut, municipal parks provide families with significant recreational opportunities, but continue to be a place where children can be unnecessarily exposed to dangerous pesticides. Some municipalities in Connecticut have already gone beyond what Connecticut state law requires, by successfully eliminating toxic pesticides on all school playing fields, playgrounds, and municipal greens. To protect *all* children where they play, the legislation should be expanded to include municipal parks.

CCE strongly supports expanding the current state law to create a uniform, non-toxic, lawn care policy for *all* state and municipal parks, playgrounds, and athletic fields in Connecticut, and respectfully urges passage of this important children's health protection.

On behalf of our members in Connecticut, we appreciate the opportunity to provide testimony and look forward to working with you on this important issue.

¹ "A Cost Comparison of Conventional Turf Management and Natural Turf Management for School Athletic Fields" (C. Osborne & D. Wood, 2010)

See also:

"East Meadow Organic Fields 6-8-12" organic vs. conventional lawn care cost comparison (source: Grassroots Environmental Education)

Conventional (Chemical) Turf Management
2007-2008 program

Natural (Organic) Turf Management
2011-2012 actual

% Saved 24.38%

Conversion Chart

Old Procedure- Pesticides

New Procedure- Organic

Square Footage of Fields	Square Yards	Acres
184,694	20,522	4.24
159,865	17,763	3.67
59,677	6,631	1.37
119,790	13,310	2.75
404,237	44,915	9.28

SCHOOL	Pre-emergent	Fertilizer	Post Emergent	Fertilizer
CC (3)	1,786	1,696	1,076	1,696
EMHS (3)	1,506	1,468	908	1,468
CH (1)	595	548	387	548
WD (2)	1,191	1,100	775	1,100
Sub Total	5,078	4,812	3,146	4,812
Water Cost	12,750			
Total cost per acre				\$3,297
Total				\$30,598.81

SCHOOL	Application 1 (Organic Fertilizer)	Application 2 (Fert. & Compost Tea)	Application 3 (Organic Fertilizer)	Application 4 (Fert. & Compost Tea)	Application 5 (Organic Fertilizer)	Application 6 (Lime)
CC (3)	1,026	814	1,026	814	1,026	865
EMHS (3)	888	705	888	705	888	749
CH (1)	332	263	332	263	332	279
WD (2)	666	528	666	528	666	561
Sub Total	1,885	1,496	1,885	2,310	2,911	2,454
Water Cost	10,199					
Total cost per acre						\$2,494
Total						\$23,140.16

Total Reduction in Cost: \$7,458.65

Notes: Water cost decrease by approx 20% (petrochemicals absorb water)

All programs, traditional and organic, require aeration, top dressing, seeding, and grub control (as needed) for optimal results thus their cost is consistent between each method, and therefore not included in the calculation.

A Cost Comparison of
Conventional (Chemical) Turf Management
and Natural (Organic) Turf Management
for School Athletic Fields

A report prepared by
Grassroots Environmental Education
A non-profit organization

Written by
Charles Osborne
& Doug Wood

March, 2010

A Cost Comparison of Conventional (Chemical) Turf Management and Natural (Organic) Turf Management for School Athletic Fields

Introduction

The mounting scientific evidence linking exposure to pesticides with human health problems, especially in developing children, has increased the demand for non-chemical turf management solutions for schools. One obstacle commonly cited by chemical management proponents is the purported higher cost of a natural turf program.

This report compares the annual maintenance costs for a typical 65,000 square foot high school football field using both conventional and natural management techniques. Both programs are mid-level turf management programs, typical of those currently being used at many schools across New York State.¹

The analysis of data demonstrates that once established, a natural turf management program can result in savings of greater than 25% compared to a conventional turf management program. (Fig. 1)

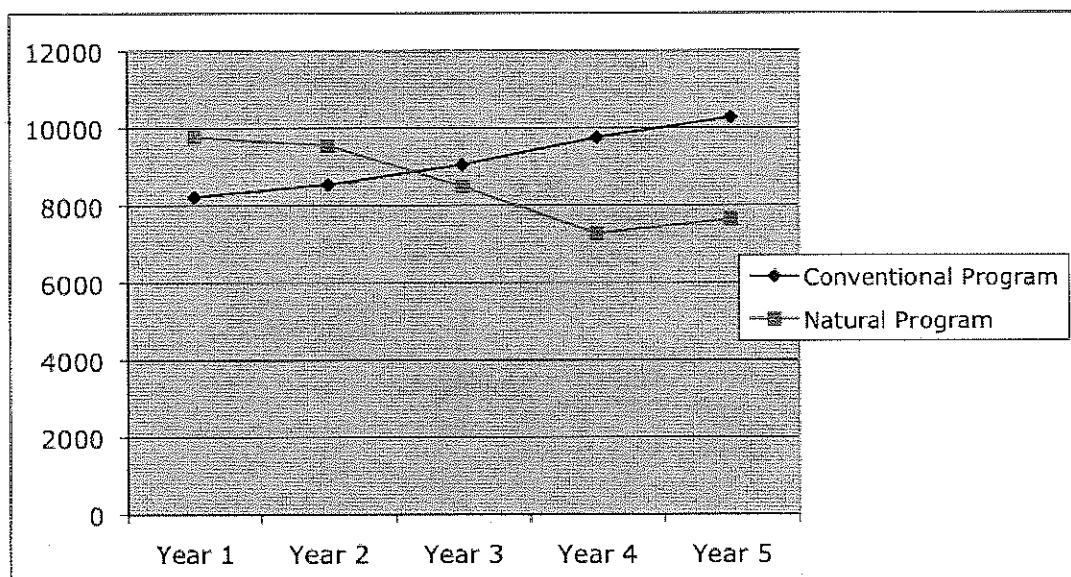


Figure 1: A Comparison of Costs for Conventional and Natural Turf Programs Over A Five-Year Period

¹ We recognize that some schools will spend considerably less for field maintenance than our example, and some will spend much more. The turf management programs chosen for this comparison are designed to yield similar aesthetic results.

Background

Prior to 1950, all school playing fields were maintained organically. The widespread use of chemical pesticides to control weeds, insects and turf diseases on school playing fields began in the post-World War II era, when chemical companies sought to establish markets for their products in the agricultural, consumer and municipal sectors. By the mid-1990s, former New York State Attorney General Robert Abrams estimated that 87% of public schools in the state were using chemical pesticides on their fields.²

As awareness of the risks associated with pesticides has grown and demand for non-toxic solutions has increased, manufacturers and soil scientists have responded with a new generation of products and technologies that have changed the economics for natural turf management. Product innovation has resulted in more effective products, and advances in soil science have increased understanding of soil enhancement techniques. Virtually all major turf chemical manufacturers now offer an organic product line. Professional training and education have also increased, with most state extension services and professional organizations now offering training courses in natural turf maintenance.

Sources of Data

The products, costs, application rates and other data for our analysis have been obtained from various sources, including the Sport Turf Managers Association³, Iowa State University⁴, bid specifications from a coalition of public schools on Long Island,⁵ bids and proposals from conventional turf management companies, and documented costs for existing natural programs.

Economic Assumptions

This analysis is based on the cost of operating in-house turf programs. Sub-contracted programs typically cost 30-35% more. Both programs include fertilization, seeding and aeration. All product costs are based on quantity institutional purchases, with a calculated 7% annual cost increase. Labor costs have been calculated based on a municipal employee @ \$40,000 including

² *Pesticides in Schools: Reducing the Risks*, Robert Abrams, Attorney General of New York State, March 1993.

³ "2009 Field Maintenance Costing Spreadsheet" published by the STMA. Available online at www.stma.org/_files/_items/stma-mr-tab6-2946/docs/field%20maintenance%20costing%20spreadsheet.pdf

⁴ "Generic Football Field Maintenance Program" by Dr. Dave Minner. Department of Horticulture, Iowa State University.

⁵ "Invitation to Bid, Organic Lawn Care Field Maintenance and Supplies," Jericho Union Free School District, Jericho, NY on behalf of 31 school districts.

benefits, calculated at \$20 per hour. Indirect costs for pesticide applicator licenses, training, storage/security and DEC compliance costs have been estimated at \$500 per year. Fertilization for both programs has been calculated at the rate of 5 lbs of nitrogen (N) per 1000 SF. Grub and/or insect controls may or may not be necessary. Compost has been calculated at a cost of \$40 per yard. Seeding rate is calculated at 5 lbs/1000 SF. Cost of water is estimated at \$0.003212/gal.^{6 7}

Irrigation

Irrigation costs for turf maintenance are considerable, but are generally less for naturally maintained fields due to deep root growth and moisture retention by organic matter. Estimates of irrigation reduction for natural turf programs range from 33% to more than 50%. This analysis uses a conservative diminishing factor for irrigation reduction for the natural management program, starting with 100% in the first year as the field gets established down to 60% in the third year and beyond. Some school districts may experience greater savings.

Soil Biology

One of the most critical factors in the analysis – and the one most difficult to assess - is the availability and viability of microbiology on fields that have been maintained using conventional chemical programs. The microbiology that is essential for a successful natural turf management program can be destroyed or severely compromised by years of chemical applications. In this analysis, we have assumed a moderate level of soil biology as a starting point; the compost topdressing in years 1-3 is part of the rehabilitation process required to restore the soil to its natural, biologically active state.

Reducing Fertilization Costs

Once playing fields have been converted to a natural program and the percentage of organic matter (%OM) has reached the desired level (5.0-7.0), additional significant reductions in fertilization costs can be realized using compost tea and other nutrients (humic acid, fish hydrolysates) applied as topical spray, rather than using granular fertilizers.

The following chart shows the product cost benefits of switching to an organic nutrient spray program, and amortizing the \$10-12,000 capital cost for equipment over three years. (Fig. 2)

⁶ Water usage computed using STMA recommended irrigation rate of one inch/week for Junior High football field. Iowa State University recommends 1.75 inches per week for football fields.

⁷ Price computed using NUS Consulting International Water Report for 2008 average US water cost per m3 adjusted for inflation.

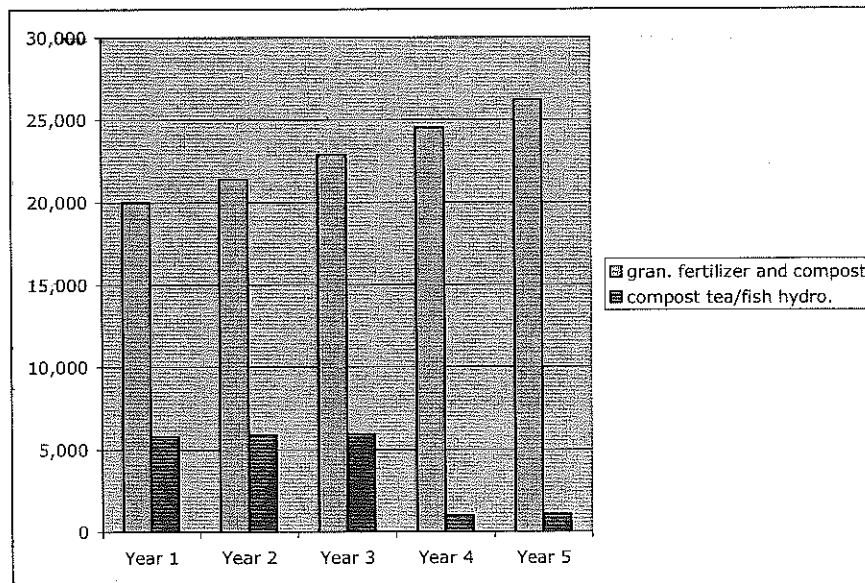


Figure 2: Cost comparison of granular fertilizer and compost compared to spraying compost tea and fish hydrolysates in Marblehead, MA.⁸

Conclusion

This analysis demonstrates that the cost of a natural turf management program is incrementally higher in the first two years, but then decreases significantly as soil biology improves and water requirements diminish. Total expenditures over five years show a cost savings of more than 7% using natural turf management, and once established, annual cost savings of greater than 25% can be realized.

About the authors:

Charles Osborne is a professional turf consultant, working with municipalities and school districts in the Northeast to help them develop effective natural turf management programs. A professional grower with more than thirty years of experience in greenhouse and turf management, Mr. Osborne is the Chairman of the Town of Marblehead Recreation, Parks, and Forestry Commission where he oversees the management of the Town's school and municipal fields.

Doug Wood is the Associate Director of Grassroots Environmental Education, an environmental health non-profit organization which developed the EPA award-winning program, "The Grassroots Healthy Lawn Program." He is also the director and producer of the professional video training series "Natural Turf Pro."

⁸ To address concerns over the potential phosphorus content of compost tea (contained in the bodies of microbes) only high-quality vermicompost should be used for tea production. Animal manure teas, popular with farmers for generations, are not suitable for use on lawns or playing fields.

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)
TURF MANAGEMENT PROGRAMS: YEAR ONE

CONVENTIONAL PROGRAM		Year 1	Year 1	Year 1
		cost	cost	total
		prod	labor	
April	fert/pre-emergent	\$250	\$95	\$345
May	fertilizer	\$225	\$95	\$320
June	grub or insect	\$325	\$95	\$420
June	post-emergent	\$90	\$150	\$240
July	fertilizer	\$225	\$95	\$320
Sep	fertilizer	\$225	\$95	\$320
Nov	fertilizer	\$225	\$95	\$320
June	seed	\$700	\$150	\$850
Sep	seed	\$700	\$150	\$850
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,212	\$150	\$3,362
	indirect costs			\$500
	Total Cost			\$8,222
NATURAL PROGRAM		Year 1	Year 1	Year 1
		cost	cost	total
		prod	labor	
April	fertilizer	\$610	\$115	\$725
June	fertilizer	\$610	\$115	\$725
June	liquid humate	\$120	\$100	\$270
July	fish/compost tea	\$100	\$100	\$250
Sep	fertilizer	\$610	\$115	\$725
Jun	seed	\$700	\$150	\$850
Sep	seed	\$700	\$150	\$850
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,300	\$350	\$1,650
	irrigation	\$3,212	\$150	\$3,362
	Total Cost			\$9,782

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)
TURF MANAGEMENT PROGRAMS: YEAR TWO

CONVENTIONAL PROGRAM		Year 2	Year 2	Year 2
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$267	\$95	\$362
May	fertilizer	\$240	\$95	\$335
June	grub or insect	\$347	\$95	\$335
June	post-emergent	\$96	\$150	\$246
July	fertilizer	\$240	\$95	\$335
Sep	fertilizer	\$240	\$95	\$335
Nov	fertilizer	\$240	\$95	\$335
June	seed	\$750	\$150	\$900
Sep	seed	\$750	\$150	\$900
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,436	\$150	\$3,586
	indirect costs			\$500
	Total Cost			\$8,544
NATURAL PROGRAM		Year 2	Year 2	year 2
		cost	cost	total
		prod+7%	labor	
April	fertilizer	\$653	\$115	\$768
June	fertilizer	\$653	\$115	\$768
June	liquid humate	\$128	\$100	\$228
July	fish/compost tea	\$107	\$100	\$207
Sep	fertilizer	\$653	\$115	\$768
Jun	seed	\$750	\$150	\$900
Sep	seed	\$750	\$150	\$900
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,390	\$350	\$1,740
	irrigation	\$2,749	\$150	\$2,899
	Total Cost			\$9,553

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)
TURF MANAGEMENT PROGRAMS: YEAR THREE

CONVENTIONAL PROGRAM		Year 3	Year 3	Year 3
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$285	\$95	\$380
May	fertilizer	\$256	\$95	\$351
June	grub or insect	\$371	\$95	\$467
June	post-emergent	\$103	\$150	\$253
July	fertilizer	\$256	\$95	\$351
Sep	fertilizer	\$256	\$95	\$351
Nov	fertilizer	\$256	\$95	\$351
June	seed	\$775	\$150	\$925
Sep	seed	\$775	\$150	\$925
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,676	\$150	\$3,826
	indirect costs			\$500
	Total Cost			\$9,055
NATURAL PROGRAM		Year 3	Year 3	Year 3
		cost	cost	total
		prod +7%	labor	
April	fertilizer	\$699	\$115	\$814
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$137	\$100	\$237
July	fish/compost tea	\$114	\$100	\$214
Sep	fertilizer	\$699	\$115	\$814
Jun	seed	\$775	\$150	\$925
Sep	seed	\$775	\$150	\$925
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,487	\$350	\$1,837
	irrigation	\$2,206	\$150	\$2,356
	Total Cost			\$8,497

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)
TURF MANAGEMENT PROGRAMS: YEAR FOUR

CONVENTIONAL PROGRAM		Year 4	Year 4	Year 4
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$305	\$115	\$420
May	fertilizer	\$274	\$115	\$389
June	grub or insect	\$416	\$115	\$531
June	post-emer	\$110	\$170	\$280
July	fertilizer	\$274	\$115	\$389
Sep	fertilizer	\$274	\$115	\$389
Nov	fertilizer	\$274	\$115	\$389
June	seed	\$800	\$170	\$970
Sep	seed	\$800	\$170	\$970
aerate	3 times	\$0	\$425	\$425
	irrigation	\$3,933	\$170	\$4,103
	indirect costs			\$500
	Total Cost			\$9,755
NATURAL PROGRAM				
		Year 4	Year 4	Year 4
		cost	labor	total
		prod +7%		
April	fertilizer	\$0	\$0	\$0
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$150	\$120	\$270
July	fish/compost tea	\$500	\$720	\$1,220
Sep	fertilizer	\$748	\$135	\$883
Jun	seed	\$800	\$170	\$970
Sep	seed	\$800	\$170	\$970
	aerate 3x	\$0	\$425	\$425
Jun	topdress	\$0	\$0	\$0
	irrigation	\$2,360	\$170	\$2,530
	Total Cost			\$7,268

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)
TURF MANAGEMENT PROGRAMS: YEAR FIVE

CONVENTIONAL PROGRAM		Year 5	Year 5	Year 5
		Cost	cost	total
		prod + 7%	labor	
April	fert/pre-emergent	\$326	\$115	\$441
May	fertilizer	\$294	\$115	\$409
June	grub or insect	\$445	\$115	\$560
June	post-emergent	\$117	\$170	\$287
July	fertilizer	\$294	\$115	\$409
Sep	fertilizer	\$294	\$115	\$409
Nov	fertilizer	\$294	\$115	\$409
June	seed	\$856	\$170	\$1,026
Sep	seed	\$856	\$170	\$1,026
aerate	3 times	\$0	\$425	\$425
	irrigation	\$4,208	\$170	\$4,378
	indirect costs			\$500
	Total Cost			\$10,279
NATURAL PROGRAM				
		Year 5	Year 5	Year 5
		cost	labor	total
		prod + 7%		
April	fertilizer	\$0	\$0	\$0
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$160	\$120	\$280
July	fish/compost tea	\$535	\$720	\$1,255
Sep	fertilizer	\$800	\$135	\$935
Jun	seed	\$856	\$170	\$1,026
Sep	seed	\$856	\$170	\$1,026
	aerate 3x	\$0	\$425	\$425
Jun	topdress	\$0	\$0	\$0
	irrigation	\$2,525	\$170	\$2,695
	Total Cost			\$7,642